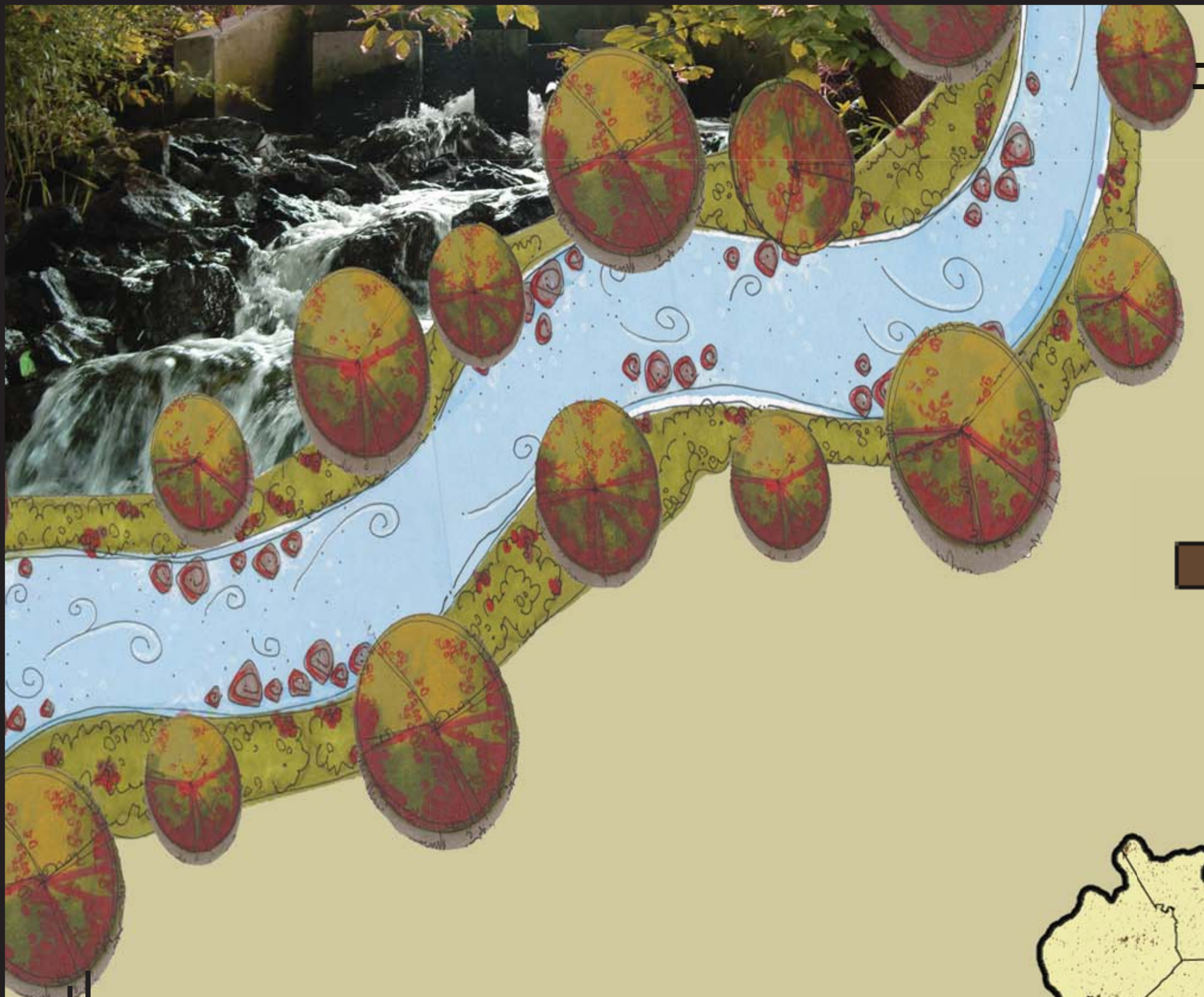
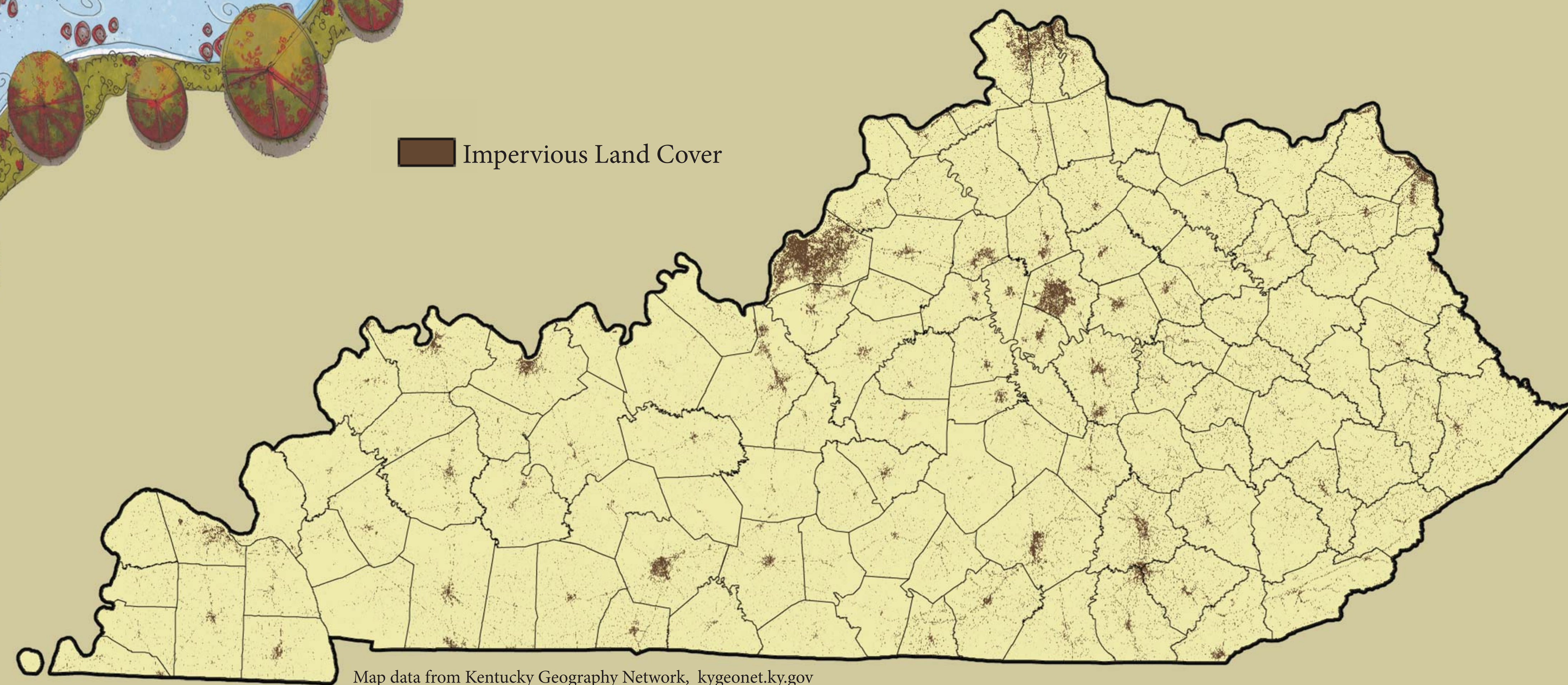


Nonpoint Source Solutions for Developed Areas



Impervious Land Cover in Kentucky

The brown on this map indicates impervious land cover in Kentucky. Impervious surfaces are hard surfaces such as asphalt, concrete, rooftops, and compacted soils where infiltration of water is prevented. Urban stormwater runoff has tremendous impacts on stream quality, causing habitat degradation, high volumes of pollutants, streambank erosion, eutrophication and increased temperatures. Water quality is also impacted by the relocation and piping of streams and wetlands to make room for development.

Commercial Parking Lots and Street Surfaces

Urban stormwater runoff is impacting our aquatic systems in innumerable ways. Impervious surfaces in urban environments, such as parking lots and streets are generating extreme amounts of runoff in pollutant heavy areas. When water can't penetrate the surface, it runs off. The runoff picks up pollutants on the impervious surface and deposits them into our streams.

Pollutants from parking lots and streets may include:

- Automotive fluids
- Toxic metals
- Increased temperatures
- Toxic substances from asphalt sealants (PAHs)
- Road salts and other deicing chemicals

These pollutants may enter directly into streams due to poor management practices, or through the stormwater infrastructure. Either way, our streams pay a price.

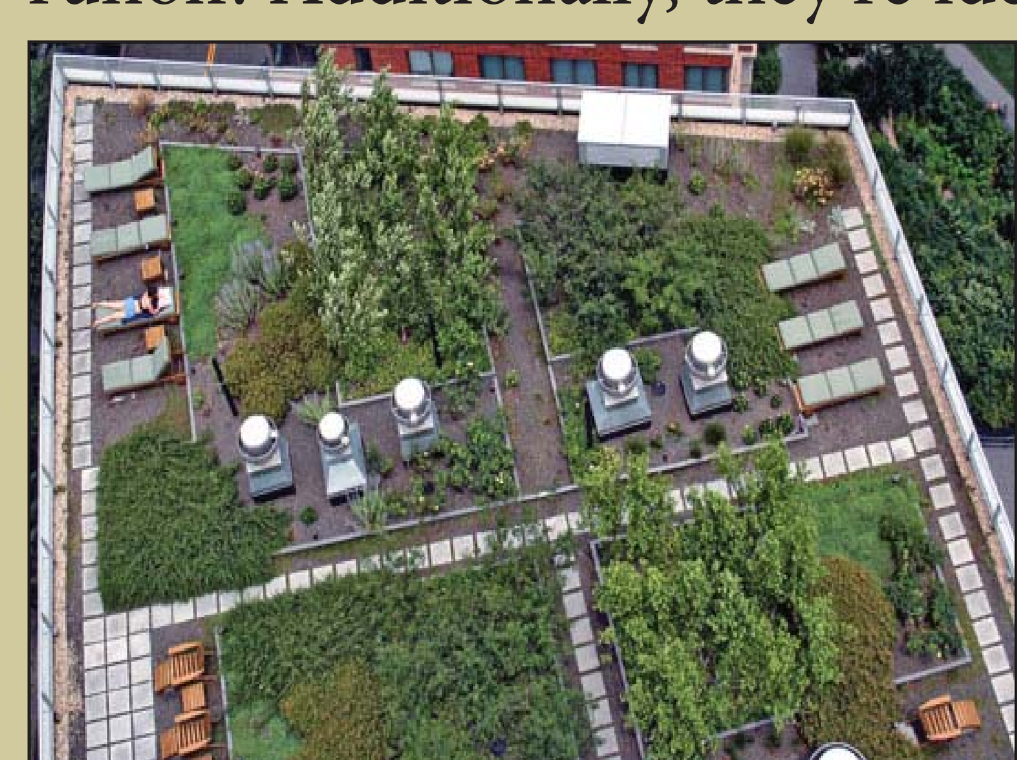
This parking lot is paved with pervious material, allowing rainwater to permeate the surface instead of run over it. Nearly 95% of the hydrocarbons in runoff come from the materials used to create asphalt.

This parking lot design incorporates a bioretention swale to reduce stormwater runoff. The parking lot is graded so that the runoff enters the swale where the vegetation and river rock filter pollutants from the water.

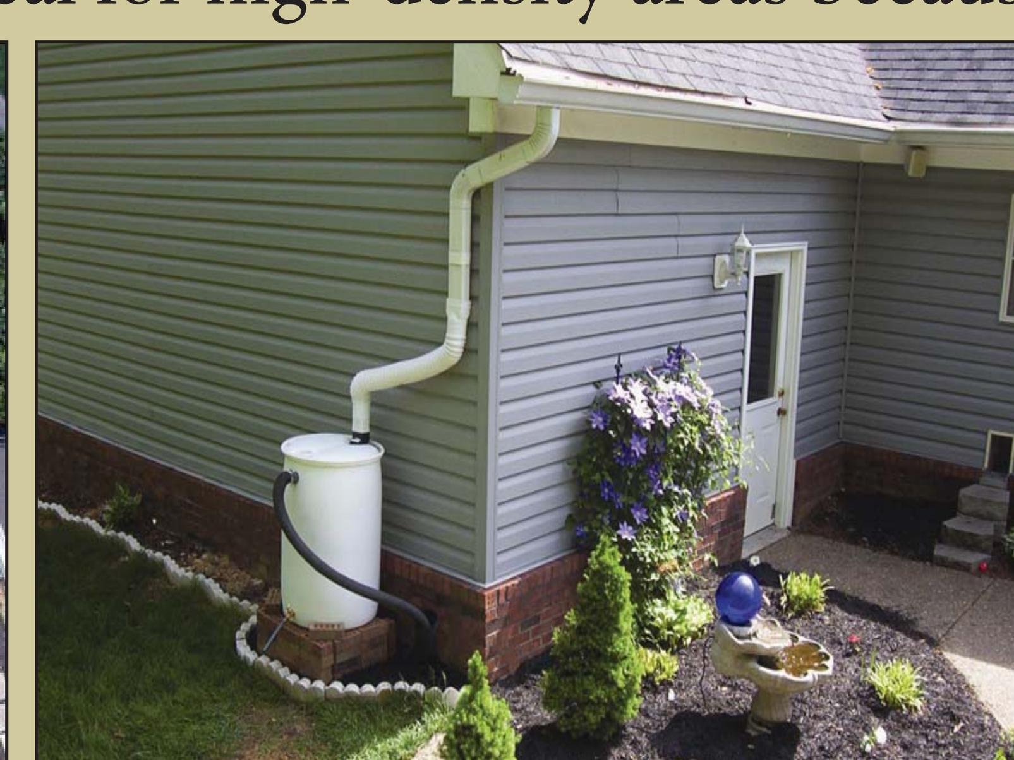
Flush medians and roadsides (no-curb) allow stormwater runoff from impervious surfaces to enter into vegetated areas where it infiltrates the soils and recharges the groundwater table.

Commercial and Industrial Rooftops

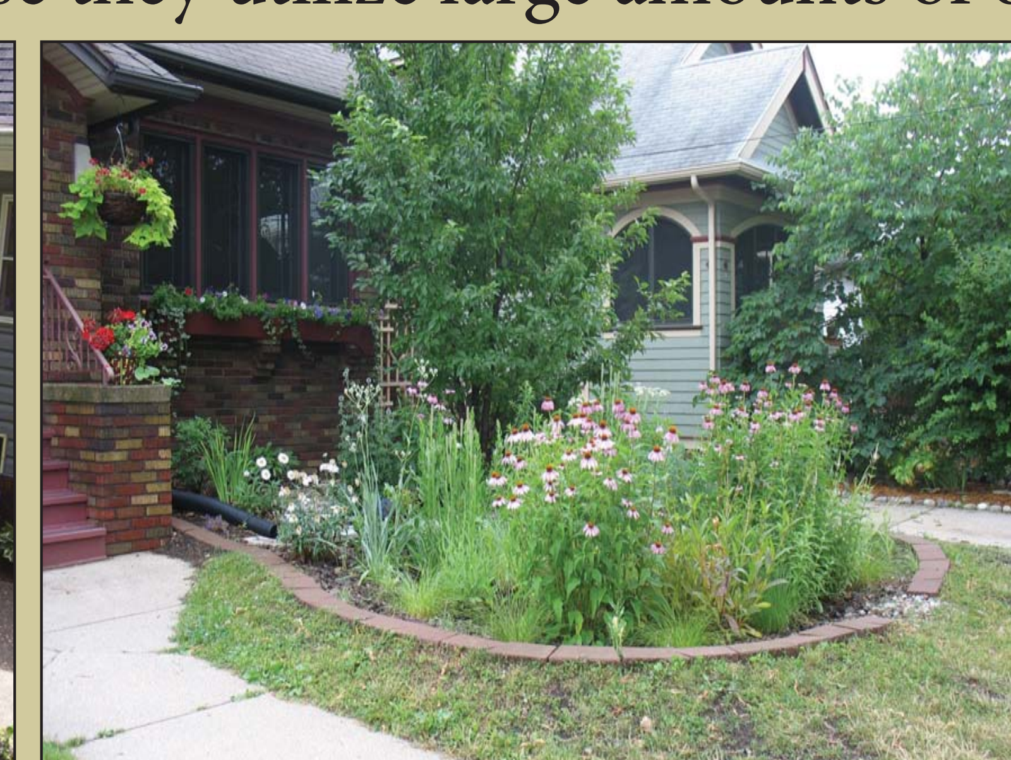
Commercial and industrial rooftops (as well as commercial parking lots) are known as stormwater "hotspots." Runoff from these areas have even higher concentrations of pollutants than other urban areas known to impact water quality. The use of greenroofs and stormwater collection systems such as rain gardens and rain barrels can significantly reduce the amount of pollutants found in urban runoff! Additionally, they're ideal for high-density areas because they utilize large amounts of otherwise unused space!



This example of a greenroof is also pleasant, usable space for the people living in the building.



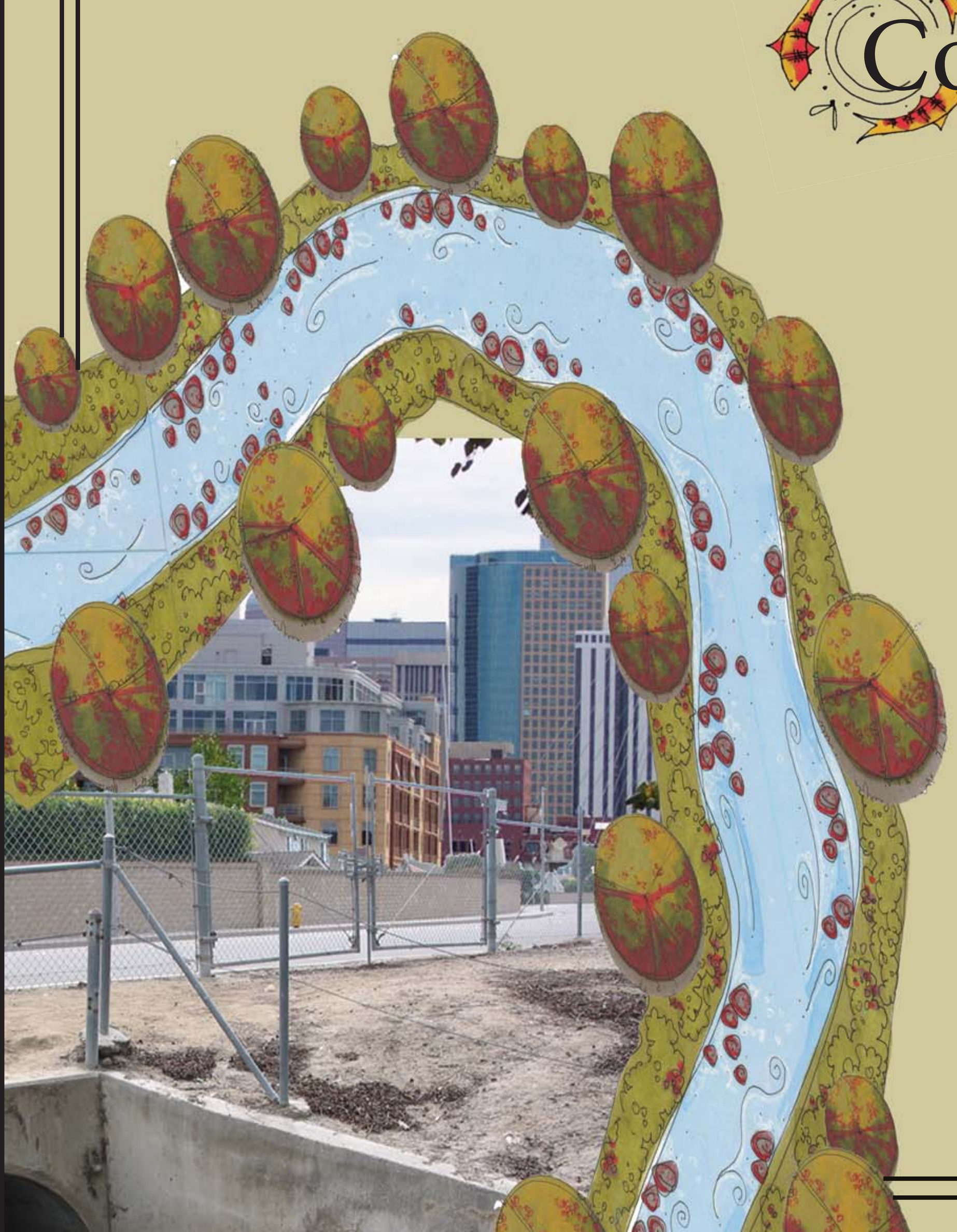
This rain barrel allows the homeowner to reuse the stormwater runoff captured in the roof drains.



Stormwater runoff is directed into this rain garden where sediments and pollutants are filtered.

Other Stormwater "Hotspots"

- Gas Stations
- Vehicle washes/steam cleaning
- Fleet storage areas
- Outdoor industrial storage/ loading areas
- Transportation related areas such as airports



- ☑ Sediment
- ☑ Pathogens
- ☑ Habitat alterations
- ☑ Organic Enrichment
- ☑ Nutrients

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2 Understanding Nonpoint Source Pollution

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